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BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. 21. Lancaster, Pa., September 29, 1894. No. 9.

Note on Tubercularia pezizoidea Schwein.

By Hermann Schrenk.

(Plate 218.)

In the "Synopsis Fungorum" (1831)[1] appeared the description of a fungus, collected on poplar logs in New York by Dr. Torrey, to which Schweinitz gave the name *Tubercularia pezizoidea*. The description was as follows: "T. Sporidochiis, fasciculatim confluentibus, maximis, pezizoideis, undulato-plicatis, ex-epidermide prorumpentibus et ad uncialem longitudinem irregulariter confluentibus, pede crasso suffultis, substantia indurato-cornea, strato sporidifero compacto incarnato purpureo, subnitente, sed superficie subpruinosa. Intus albescunt et ætate subpulverulenta evadunt sporidochia. Talis cupula non confluens diametrum plus quam bilinearam habet et Pezizam margine obtuso, undulato plicato disco refert."

This fungus, apparently common in the northern United States, was reported by Hitchcock[2] as *Tubercularia pezizoidea* Schw. in 1829, previous to the publication of the name by Schweinitz, Hitchcock probably having seen some of the Schweinitz specimens. Somewhat later Sprague[3], in cataloging this form from

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1. *L. D. de Schweinitz*—Synopsis Fungorum in America Boreali media degentium. Communicated to Am. Phil. Soc. Philadelphia, 15 Ap. 1831.
2. *E. Hitchcock*—Catalogue of Plants growing within 50 miles of Amherst, Mass. 64. 1829.
3. *C. S. Sprague*—Bost. Soc. Nat. Hist. **6**: 319. 1858.

Eastern Massachusetts as *Tubercularia pezizoidea* Schw. makes the following note: "This is not a true *Tubercularia*, but is an anomalous and probably immature form of some high order. It is found, however, all over the United States in precisely the same condition, specimens from Lake Superior and Massachusetts do not differ at all." In 1875 in Grevillea,[4] there is a description of a *Hypocrea*, where it is stated that it and the *Tubercularia pezizoidea* of Schweinitz are identical. This was named *Hypocrea Richardsoni* Berk. & Mont. I have been unable to find any note as to Montagne's connection with this species, the paper in Grevillea being by Berkeley, and the earliest one in which the name *Hypocrea Richardsoni* occurs, as far as I have been able to ascertain.

Since then the fungus has been reported under one of these two names by various writers. Cooke[5], and Paoletti[6] give it as *Tubercularia pezizoidea*. Frost[7] uses the name *Hypocrea Richardsoni* in 1869, six years previous to its publication (evidently a manuscript name.) It is mentioned as this furthermore by Tuckerman and Frost[8], Fowler[9], Day[10], Arthur[11], Cobb[12], Kelsey[13], Farlow[14], Peck[15] and Cockerell[16].

In order to determine whether this fungus is a *Hypocrea* or a *Tubercularia*, I examined specimens from various sources. I was fortunate in being able to see some of the original Schweinitz specimens and to recognize that they agreed in every way with specimens of Berkeley's *Hypocrea Richardsoni.* (In Herb. Curtis, Russell, Mass. 5870.) Although the external appearance is that of a *Tubercularia,* yet the structure is in no way that of a *Tubercularia.* As to its being a *Hypocrea,* there are to be sure structures which by many have been mistaken for asci and their spores, but which, as will be seen, are of an entirely different nature.

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[4] *M. J. Berkeley*—Notices of North American Fungi. Grev. **4**: 14. 1875–76.

[5] *M. C. Cooke*—Hyphomycetous Fungi of U. S. Bull. Buffalo Soc. **3**: 192. 1877.

[6] *Giulio Paoletti*—Revisione del Genere *Tubercularia*. Atti Soc. Ven. Trent. Sci. Nat. **11**: fas. 1, Padova. 1888.

[7] *C. C. Frost*—Enumeration of New England Fungi. Proc. Bost. Soc. Nat. Hist. **12**: 80. 1869.

[8] *E. Tuckerman and C. A. Frost*—Cat. of Plants growing without Cultivation within 30 miles of Amherst College. 1875.

[9] *James Fowler*—List of New Brunswick Plants. Ann. Rep. Sec. Agr. Prov. N. B. for 1878.

[10] *David F. Day*—Cat. of Plants about Buffalo, 161. 1883.

[11] *J. C. Arthur*—Report of Botanical Work in Minnesota for 1886. 33.

[12] *W. A. Cobb*—A List of Plants found growing wild within 30 miles of Amherst, Mass. 1887.

[13] *F. D. Kelsey*—Notes on the Fungi of Helena, Mont. Journ. Myc. **5**: 81. 1889.

[14] *W. G. Farlow*—Cryptogamic Flora of White Mts. Appalachia **3**: 247.

[15] *C. H. Peck*—22d N. Y. State Report, 97.

[16] *T. D. A. Cockerell*—Notes on Flora of high altitudes in Custer Co., Colorado. Bull. Torr. Bot. Club, **18**: 173. 1891.

The fungus is scattered over the branches of poplars in tubercular, purplish-red masses, breaking through the epidermis at an early stage. It is attached to the substratum at the centre, is disc-shaped and convex above when young, becoming more or less wrinkled when old. On sectioning a single mass it will be found to consist of a loosely woven mycelium on the inside, the hyphæ of which gradually become parallel, forming a cortex of parallel hyphæ. Into this layer there extend large club-shaped bodies filled with larger and smaller oil-globules ("c" fig. 4.) These bodies are in most cases perfectly club-shaped, but some very irregular forms are met with, branching or swelling at the apex into bodies resembling sporidia. By various authors these bodies have been taken for asci and described as such, but it is evident from their vague and uncertain descriptions of spores that they were not sure of having seen any. More recent writers have always reported the fungus as sterile. (Ellis[17], Peck[18], etc.).

On closely examining the tips of the parallel hyphæ, some of them were found projecting beyond the others, slightly swollen and provided with four distinct sterigmata and spores. In order to see these distinctly, it was found very advantageous to treat the sections for several minutes with potash and employ a high magnification. The fertile basidia are not very numerous, and are difficult to distinguish from the paraphyses, as I would call the parallel hyphæ. The sterigmata are short and have at their tip fuliginous elliptical basidiospores. There is a possibility that the basidia at first have conidia, in fact some of the sterile basidia were constricted at the top as if about to bear a conidium. As to the clavate bodies there is some question concerning their function. They differ from the cystidia of other Hymenomycetes in not being at a level with the basidia in the hymenium, their position in this respect being very constant. Whether or not they function as food receptacles, as might be supposed from their oily contents, it is difficult to say.

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[17] *J. B. Ellis and B. M. Everhart*—Journ. Myc. 2 : 62. 1886.

[18] *C. H. Peck*—24th N. Y. State Mus. Rep. 103.

An examination of various specimens of *Hypocrea Richardsoni* showed the basidia and sterigmata in most cases. The ones in Ellis, N. A. F., 1329, were particularly good. The Schweinitz specimens of *Tubercularia pezizoidea* had a large number of clavate bodies and sterile basidia. Specimens collected by Dr. Thaxter at Waverly, Mass., and others from Shelburne, N. H., collected by myself this spring, showed the basidia and their spores perfectly.

From all this it appears that the fungus is neither a *Tubercularia* nor a *Hypocrea*, but one of Basidiomycetes and more specifically one of the Hymenomycetes. The basidia are in a hymenium which is perfectly smooth, a character which would place this form among the Thelephoreæ. The absence of setæ, the superior hymenium, the approximately flat and sessile sporophore includes it in my opinion in the genus *Corticium*. The plant would then have to take the name *Corticium pezizoideum* (Schw.) and be characterized as follows:

Scattered or gregarious, purplish-red, breaking through the epidermis, finally centrally attached, margin free, discoid, smooth when young, becoming more or less wrinkled when older. Hymenium smooth; basidia 5.5 μ wide with slightly allantoid fuscous basidiospores 5–7 μ + 1½ μ. Large cystidia-like bodies very numerous, extending into the hymenial layer, generally with numerous oil-globules.

Growing on poplar logs in the colder portions of North America, from New England westward to Colorado and northward.

I would thank Dr. W. G. Farlow for the use of specimens and literature and for his interest and aid offered me in my work.

Description of Plate 218.

FIG. 1. *Corticium pezizoideum* (Schw.) Schrenk. The older ones are wrinkled.

FIG. 2. Section of a young *Corticium*, rupturing the epidermis.

FIG. 3. Section of a mature *Corticium* (magnified), showing the hymenium and the clavate bodies distributed through it.

FIG. 4. A portion of the hymenium more highly magnified; "b," basidia and spores; "c," clavate bodies; "p," paraphyses.

FIG. 5. Irregular forms of the clavate bodies containing oilglobules.
FIG. 6. Basidia with sterigmata and spores (highly magnified).
FIG. 7. Basidiospores.

Contribution to the Lichens of Maine.--I.

BY F. L. HARVEY.

The following list embraces lichens from Maine collected by the Rev. Joseph Blake and found in the Blake Herbarium of the Maine State College, together with species noticed about Orono by the writer, and a few species recorded from Maine in Tuckerman's North American Lichens.

The list includes all the species known by the writer to have been published from the State. No personal efforts have been made to collect these neglected forms beyond what was needed for class work, hence the list from Orono and other parts of the State is far from exhaustive.

Miss Cummings has collected quite extensively during the past season in Aroostook Co., and we understand has detected quite a large number of interesting forms that will swell the State list. The lichens in the Blake Herbarium were largely collected from thirty to forty years ago, those from Mt. Ktaadn bearing date of July 4, 1856. Mr. Blake's correspondence shows that probably all his specimens were determined by Tuckerman. The specimens have withstood the ravages of time much better than the names have the criticisms of systematists.

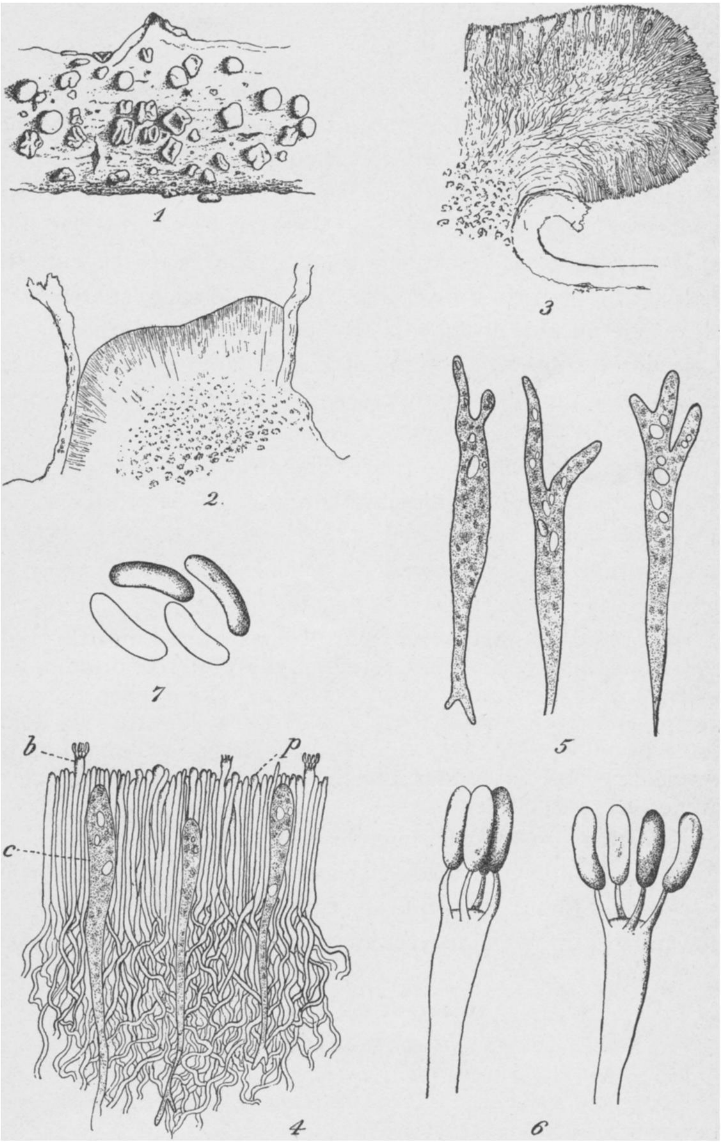
The synonymy has presented some knotty problems, which we trust have been correctly solved. The modern names only have been given in the list. We desire to acknowledge our indebtedness to Miss Clara E. Cummings for professional courtesies. We would be pleased to correspond with all who have collected lichens or other Cryptogams in Maine, looking toward a catalogue of the Cryptogams of the State. In listing the species we have followed the sequence adopted in Tuckerman's "Genera Lichenum."

Tribe I.—Parmeliacei.

FAM. I.—USNEEI.

1. *Ramalina calacaris canaliculata* Fr. On trees, common. Me. (Blake); Orono (Harvey).

BULLETIN OF THE TORREY BOTANICAL CLUB.—PLATE 218.



CORTICIUM PEZIZOIDEUM (SCHWEIN.) SCHRENK.